

sible, I trained a wasp to come to some honey which I placed in a box communicating with the outside by an india-rubber tube six inches in length and one-third of an inch in diameter. She came to this honey continuously for three days, during which time no other wasp found the honey. As regards colour, I satisfied myself, by experiments like those made with bees, that they are capable of seeing colour, though they appear to be less influenced by it than are bees.

OUR BOTANICAL COLUMN

IRISH HEPATICÆ.—S. O. Lindberg has just published a quarto memoir on the "Hepaticæ in Hibernia mense Julii 1873 lectæ." This memoir is a reprint from the tenth volume of the "Acta Societatis Scientiarum Fennicæ," and contains a list of eighty-nine species of Hepaticæ collected during a month's visit to Ireland. The author had the benefit of the great geographical knowledge of Dr. Moore—the author with A. G. More of the "Cybele Hibernica"—to enable him to visit, without delay, the most productive portions of Ireland; otherwise it may be doubted if his collections would have been so rich. Many of the species described are very rare; some of them are new. The synonymy of the species is worked out in a manner worthy of the greatest praise. Many of the smaller forms among *Lejeunea* and other genera are described from fresh specimens or from those preserved in alcohol. The collections were chiefly made in Killarney. Of the new species we may mention *Lejeunea patens*, L. Moorei, *Zygodon aristatus*. In an appendix we find a list of the genera of European Hepaticæ classified as follows:—

1. Marchantiaceæ.
2. Jungermaniaceæ.
3. Anthocerotæ.

The group of Marchantiaceæ is divided into *A. Schizocarpæ* and *B. Cleistocarpæ* (this latter includes such genera as *Tessellina* and *Riccia*); that of Jungermaniaceæ into the same two sub-sections; and these are again much sub-divided.

The existence in Ireland of so large a number of interesting forms, of which so very much yet remains to be known as to their life-history, ought surely to act as a stimulant to the rising school of Irish botanists.

MARINE ALGÆ OF THE UNITED STATES.—Although nearly twenty years have elapsed since the third part of Harvey's "Nereis Boreali-Americana" was sent to the press, yet the contributions to a knowledge of the North American Algæ have been but few. W. C. Farlow, one of Prof. Asa Gray's assistants, ascribes this to the fact that but few American botanists reside on the western coast of America, where novelties might be expected; and he publishes a most welcome list of the marine species of the United States *proper*, not including Alaska, but in part enumerating those of Vancouver's Island. Those added since the publication of Harvey's "Nereis" are denoted by a star. The number of species enumerated is 430, a number that doubtless will be increased when the Algæ are investigated as recent forms either living or preserved in fluid, and not, as is now frequently the case, only examined when in a state of what is but little better than that of stains on white paper. Mr. Farlow's list will be found in vol. x. 2nd ser. of the Proceedings of the American Academy of Arts and Sciences.

COFFEE IN DOMINICA.—A good deal of attention has been directed of late to the island of Dominica as a coffee-producing country, a fact briefly referred to in NATURE, vol. xii. p. 173. At one time coffee was one of the staple products of the island, and was grown not only in large quantities, but also of excellent quality. At the present time little or none is exported to Europe, but the island still grows sufficient to supply its own demands, and we believe sends a little to the neighbouring islands. This falling off in the cultivation of the coffee-plant, in a soil and climate which experience showed was eminently suited to it in every respect, was due to the extensive destruction of the plants by what was then known as the coffee blight. This was soon found to be of insect origin, but no active or energetic measures were taken to rid the island of the pest, which continued its ravages, destroying many plantations, and even driving planters away in great numbers. Nothing seems to have been known regarding the insect itself until within the past few weeks, when specimens in their various stages, together with the injured leaves, have been received at the Kew Museum. Upon submitting these specimens to an entomologist, they were at once identified as the White Coffee-

leaf Miner (*Cemistoma coffeellum*, Mann.), an insect exceedingly destructive to the coffee-plants in Brazil, Rio Janeiro, Martinique, &c. The crops of coffee in Brazil are said to be lessened one-fifth in consequence of the ravages of this insect.

It is remarkable that little seems to have been known in Dominica about the classification or habits of the insect, though it made its first appearance there in 1833, some forty-two years back, and it seems to have been known in Brazil only within the last twenty or twenty-three years. An elaborate description of the insect and its ravages will be found in the *American Naturalist*, vol. vi. pp. 332, 596; 1872.

SCIENTIFIC SERIALS

Annual Report and Proceedings of the Belfast Naturalists' Field Club, 1873, 74.—This Report was written before the meeting of the British Association in Belfast last year, so that its issue must have been very much delayed. The Society, according to the Report, as to financial condition and number of members, is in a thoroughly satisfactory condition. The Society, as a Field Club, makes excursions during summer; an account of those for 1873 is contained in this part of the Proceedings. The papers read during the winter session are all interesting; we have space only for the titles:—"On the British Association, its aims and objects," by Mr. W. Gray; "On Progressive Development," by Mr. G. Langtry; "On the Surnames of the Inhabitants of the County Antrim, and their indications," by the Rev. E. McClure; "On Flints, and the Foraminifera, Entomostraca, &c., contained in them," by Mr. Joseph Wright, F.G.S.; "Irish Cranoges and their contents," by Mr. F. Wakeman; "Notes on the Aurora Borealis, taken in Belfast in the years 1870, 71, with suggestions as to its source and that of the earth's magnetism and magnetic currents," by Dr. T. H. Keown, R.N. The Appendix contains two valuable lists; first, of the Mosses of the North-east of Ireland, by Mr. S. A. Stewart; and second, of the Cretaceous Microzoa of the North of Ireland, by Mr. Joseph Wright, F.G.S., the latter illustrated by a large number of figures.

Poggendorff's Annalen der Physik und Chemie, No. 9, 1875.—This number commences with a long paper, in which M. Wilhelm Weber investigates mathematically the motion of electricity in bodies of molecular constitution. Among the points treated are, objections against the fundamental law of electric action; identity of the moveable parts (in all bodies) whose movement is heat, magnetism, or galvanism; identity of *vis viva* of the electromotive force in the current with the heat produced by the current in the conductor; movement and distribution of electricity in conductors; and Kohlrausch's theory of thermoelectricity.—In an article on formation of sound, Prof. Stern inquires why tuning forks without resonant supports give such a very weak sound. It cannot be due, as many physicists suppose, to their less surface of contact with the air, else high-pitched small forks could not sound louder than low and large ones, nor could overtones sound louder than ground tones when e.g. a large fork is struck with a hard body. Having shown reason for thinking that the amplitude of vibration and number of vibrations in unit of time have no direct influence on the strength of the sound, Prof. Stern groups together a number of interesting phenomena bearing on the subject: the difference in rate of decrease of sound, in high and low forks, on withdrawal from the ear; a like difference with regard to transverse vibrations and those produced longitudinally; the interference-effects where resonance-cases act on each other; the effects of bringing a resonator near an organ-pipe, &c. The paper is not yet concluded.—The action of the Holtz machine still requires some elucidation, and in a paper to the Berlin Academy (here reproduced) M. Poggendorff furnishes "further facts towards an adequate theory of electric machines of the second kind" (with two moveable discs). One of these facts is as follows:—The two discs turning in opposite directions, stop (say) the front one by holding it (the screw having previously been loosened); then, when the back disc is rotated, a current is obtained as before. Now turn the front disc round through 360°, and rotate the back disc as before. If this turning be done in the direction of the front disc's former rotation, the current in the back disc is unaltered; but if in the opposite direction, it is reversed. A turning of 180° or even of 90° has the same effect. These and similar facts, indicating an influence of *direction* (rather than extent) of dis-

placement, on the direction of the current, the author is unable to account for satisfactorily; they cannot, he thinks, be due to inductive action.—Some researches by Dr. Neesen on attraction and repulsion by rays of light and heat are noticed in our "Science in Germany."—M. Soret describes the diffraction phenomena obtained with circular gratings, consisting of opaque discs with a series of openings in the form of concentric rings; and a paper of "Optical Notes," by Dr. Wolcott Gibbs, of the American Academy, treats of a new optical constant, and a method of measuring indices of refraction without employment of graduated instruments.—M. Fuchs shows how the electrometer may be used for determining intensity of current, polarisation, and resistance; and M. Mach describes a polarisation apparatus with rotating analyser.

Bulletin de l'Académie Impériale des Sciences de St. Petersburg. (t. xix. Nos. 4 and 5; t. xx. Nos. 1 and 2).—From these publications we notice the following more important papers:—On the double star α 634 = Camelopardali 19, Hev., by Dr. O. Struve.—On the salts of parabanic acid, by N. Mentchutkine; the author considers the potash, soda, ammonia, and silver salts of this acid.—On oxalurate of potash and on the determination of potassium in the salts of the acids of the uric group, by the same.—On the velocity of irritation in the spinal marrow, by E. Cyon.—Researches on blood, by Heinr. Struve.—On carbon tetraiodide, by M. G. Gustavson.—On a simple evaporimeter, alike useful in winter or summer, by H. Wild.—Continued observations of the companion of Procyon, by O. Struve.—On dimethylisobutylcarbinol and the new heptylene obtained by means of this alcohol, by M. D. Pawlow.—On iodide of ethylidene, by M. G. Gustavson.—On the chemical structure of pinacolone, by M. A. Boutlerow.—Preliminary note on the elasticity of rarefied air, by M. D. Mendeleeff and M. Kirpitschoff.—Diagnoses plantarum novarum Japoniæ et Mandshuriæ, by C. J. Maximowicz.—Report on a new iron meteorite from the shores of the Angara river, in the government of Jenisseisk, by M. A. Goebel.—Observations of the planets at the Académical Observatory of St. Petersburg; determination of the longitude of the ascending node in the orbit of Mars, by A. Savitsch.—Results of measurements made on crystals of arragonite, copper, pyrites, and skorodite, by N. von Kokscharow.—On the doubts recently raised on the cosmical origin of the Pallas iron, and a refutation of the same, by M. A. Goebel.—Hydrological researches, by Prof. C. Schmidt, of Dorpat. The author treats of the Caspian Sea, the Sea of Aral, the Dwina, and the White Sea.—On a method to obtain a uniform exposure in photographing the sun, by Dr. B. Hasselberg.—On the existence of a resisting medium in celestial space, by Dr. E. von Asten.—Researches on the theory of the determination of orbits, by Fr. W. Berg.—Barycentric theorem, which gives a means to express the duration of any movement of a point, by relation of two straight lines; by J. Somoff.—A note on perowskite crystals, by N. von Kokscharow; the author describes the determination of perowskite forms by approximate measurements made with the ordinary reflexion goniometer of Wollaston, the nature of the perowskite crystals from the Ural Mountains, and the angles measured.—Results of exact measurements of sulphur crystals, by the same. Analysis of the observations made in the Caucasus on terrestrial refraction, by M. Sawitch.—A note on mechanisms which retard reflex actions, by J. Setschenow.

SOCIETIES AND ACADEMIES

LONDON

Linnean Society, Nov. 4.—Dr. G. J. Allman, F.R.S., president, in the chair.—The following papers were read:—Observations on Bees, Wasps, and Ants, Part III., by Sir John Lubbock, Bart., F.R.S. An abstract of this paper appears in another column.—On the rate of growth of the female flower-stalk of *Vallisneria spiralis*, by A. W. Bennett, F.L.S. The peduncle of the female flower of this plant is remarkable for the rapidity of its growth, attaining a length of from three to four feet, and increasing, at its period of greatest energy, at the rate of half an inch per hour. The observations were chiefly directed to determine which portion of the peduncle displayed the greatest part of this energy; and this was found to lie in a portion at but a short distance below the flower-bud; a marked zone of two inches increasing ultimately relatively to the remainder of the flower-stalk about in the proportion of three to two. This displays a greater analogy to what has been hitherto observed in

the case of roots than in that of aerial stems. The coiling up of the peduncle so as to bring the flower beneath the surface does not take place when the flower has not been impregnated.—On plants collected by Lieut. Cameron about Lake Tanganyika, by Prof. Oliver, F.R.S.—On a collection of North Celebes plants made by M. Riedel, by Prof. Oliver, F.R.S.

Chemical Society, Nov. 4.—Prof. Abel, F.R.S., president, in the chair.—First paper, On the decomposition of stearic acid by distillation under pressure, by Mr. G. Johnston.—Dr. C. R. A. Wright read a paper, by himself and Mr. G. A. Beckett, On Isomeric Terpenes and their Derivatives, being Part V. of their researches on this subject; also one On the Alkaloids contained in the Aconites, Part I.; after which Mr. F. J. M. Page gave an account of a simple form of gas regulator for maintaining a constant temperature in air-baths, water-baths, incubators, &c.—Communications were also read from Mr. R. W. E. M'ivor, on the fluorides of arsenic, phosphorus, and iodine; and on the iodide of antimony.—The last paper, On Tolyphenyl, a new hydrocarbon, was by Mr. T. Carnelly.

Zoological Society, Nov. 2.—Dr. E. Hamilton, V.P., in the chair.—The Secretary read a report on the additions that had been made to the Society's Menagerie during the months of June, July, August, and September, 1875.—A letter was read from Signor L. M. D'Albertis, giving some account of several excursions he had made into Southern New Guinea from his present quarters in Yule Island.—A note was read from Mr. Walter J. Hoffman, describing a horn of an American Pronghorn (*Antilocapra americana*), with a double prong.—A letter was read from Capt. J. Moersby, R.N., giving the exact locality of the young *Casuarium uni-appendiculatus*, presented by him to the Society in August 1874.—A communication was read from Dr. P. von Bleeker, containing a description of a rare Central-Asiatic fish (*Elopichthys dahuricus*).—A communication was read from Mr. Edgar A. Smith, containing the description of a new species of *Carinifex* from California, which he proposed to name *Carinifex ponsonbii*.—A second communication from Mr. Smith contained remarks on the genus *Alaba*, with the description of a new species.—A communication was read from Mr. W. T. Blanford correcting certain errors in the figures of *Herpestes ferrugineus* and *Ovis polii*, in the Society's Proceedings.—Mr. P. L. Slater, F.R.S., and Mr. O. Salvin, F.R.S., read a paper giving the descriptions of two birds from Medellin, State of Antioquia, U.S.C., which appeared to be new to science, and were named *Catharus phaeopleurus* and *Automolus holostictus*.—Mr. A. H. Garrod read a report on the causes of death of the Indian elephant which died in the Gardens on July 7, 1875.—A communication was read from the Rev. S. J. Whitmee, of Samoa, on the habits of the fishes of the genus *Antennarius*.—A communication was read from Mr. G. E. Dobson, containing a monograph of the bats of the genus *Taphozous*, Geoffr.—A communication was read from Dr. Otto Finsch, containing notes on the pigeons of the genus *Chrysæna*.—A communication was read from Dr. J. S. Bowerbank, F.R.S., being the fifth part of his monograph of the siliceo-fibrous sponges.

Royal Microscopical Society, Nov. 3.—Mr. H. C. Sorby, F.R.S., president, in the chair.—A very interesting paper was read by the President, On a new method of measuring bands in spectra. It was first explained that by means of the ordinary quartz absorption band plate, the exact position of a spectrum line not coinciding with either of the absorption bands, could not be accurately determined; and the necessity for so doing having been shown, the author described and figured his new contrivance designed for the purpose. It consisted of a piece of quartz about 1½ inches thick, and cut with parallel surfaces exactly at right-angles to the principal axis of the crystal, along the line of which there was no polarisation. This gave a series of seven dark bands when placed between two Nicol prisms and viewed through the spectroscope. By rotating the upper prism the position of the first band could readily be made to coincide with any given fixed line as D, and by the rotation of the lower prism the series of bands could be caused to traverse the entire spectrum, each half rotation moving them forward the precise amount of the distance existing between them. A graduated scale marked upon a circle attached to the lower prism enabled the position of the bands to be compared with great accuracy with that which they originally occupied, and of course also with that of any fixed lines shown in the comparison spectrum. A paper by Dr. J. J. Woodward (U.S.A.), on *Frustulia Saxonica*, was read by the Secretary.